App. No. 10/615675
Office Action Dated September 15, 2004
Amd. Dated March 15, 2005

Amendments to the Specification:

Please insert the following heading at page 1, line 1 of the specification.

TITLE OF THE INVENTION

Please insert the following before paragraph [0001] at page 1, line 3 of the specification.

CROSS-REFERENCE TO RELATED APPLICATIONS

Not Applicable

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not Applicable

INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC

Not Applicable

FIELD OF THE INVENTION

Please insert before paragraph [0002] the following at page 1, line 8 of the specification.

BACKGROUND OF THE INVENTION

Please replace paragraph [0008] beginning at page 2, line 3 with the following amended paragraph:

[0008] Another application area for an improved light source is film exposure machines. The film industry has changed to [[h]]a higher degree of digital post-processing of film material for special effects and different kind of overlays. However, the cinematic projectors are still analogue and the material therefore needs to be transferred to "printfilm". This process has until now been performed by a laser or CRT-based exposure

machine, capable of exposing one frame of a "master" in 2-10 seconds. This process takes several days to complete and thousands of dollars of expensive intermediate film. This master has been contact-copied to the "printfilm" at high speed, introducing errors and additional cost.

Please insert before paragraph [0013] the following at page 3, line 7 of the specification.

BRIEF SUMMARY OF THE INVENTION

Please replace paragraph [0020] beginning at page 4, line 23 with the following amended paragraph:

[0020] As light emitting devices, is preferably at least one semiconductor source employed, such as Laser, LED, a combination of lasers and LEDs, etc. These devices have the advantage that they are highly controllable with respect to optical properties. Depending on the application, different numbers and combinations of light emitting devices and devices emitting different wavelengths can be employed to provide the desired light spectrum characteristics. For example, [[may]] many LumiLEDs be employed for applications which demands high brightness. It is possible to use light emitting devices with different emitting areas/apertures, surface geometry and/or with varying spectral characteristics because of the excellent mixing of the light from the light emitting devices provided by the inventive device. This is very advantageous, as the spectral and angular characteristics of e.g. LEDs of same type may vary.

Please replace paragraph [0027] beginning at page 5, line 37 with the following amended paragraph:

[0027] The light source device may additionally comprise other optical components inside or outside the cavity. One example is to arrange a collimating lens in the light path, i.e. in front of, or behind the exit aperture or any position inside the cavity. This will reduce the angular distribution of the light exiting the aperture, which makes it possible to use few, inexpensive and simple optical components, with higher F#, the ratio of the focal length of the lens to the diameter of the aperture, after the light source devices. This will result in less aberration while still achieving equally good optical properties. Another advantage when placing a collimating lens adjacent to the aperture inside the cavity, is that this will lead to a larger virtual exit aperture (the light beam inside will "see" a larger aperture), and thus increased optical efficiency due to higher ratio between cavity surface and virtual exit aperture area. Even more increased efficiency is obtained because incident light with large angles to the lens will be subject to total internal reflections (TIR), and thus returned back into the cavity.

Please replace paragraph [0030] beginning at page 6, line 23 with the following amended paragraph:

[0030] The light sensor may be connected to a regulating unit. The regulating unit then receives the detected values from the light sensor, such as photo sensitive material/film, compares them to reference values, and communicates with the control units for adjusting the spectral characteristics of the light emitting devices to obtain the desired output, ~~such as photo sensitive material/film~~. The reference values may be pre-set in the calibrating unit, or may be dynamic variables received from an external system, e.g. from a system controlling the resulting image of a projection system etc.

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Please insert before paragraph [0031] the following at page 6, line 30 of the specification.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

Please insert before paragraph [0039] following at page 7, line 8 of the specification.

DETAILED DESCRIPTION OF THE INVENTION

Please replace paragraph [0040] beginning at page 7, line 24 with the following amended paragraph:

[0040] FIG. 3 is a closer view of the exit aperture 12 with a plano-convex lens 30 in the light path inside the cavity. The lens has several functions. Firstly, the lens will collimate the beam. This means that rays propagating towards the aperture with large incident angles, will be refracted and thus leave the aperture with less angle. In this way is less light "wasted". Another effect is that rays with even larger incident angle will experience Total Internal Reflection (TIR) and thus be reflected back into the cavity. These light rays would otherwise have been "wasted", or collimating optics would require lower F#, the ratio of the focal length of the lens to the diameter of the aperture.

Please replace paragraph [0041] beginning at page 7, line 33 with the following amended paragraph:

[0041] In FIG. 4 the housing 40 has a conical section 41 with a semi-spherical closure 42 in the wide end of the cone and the exit aperture 43 in the tapered end of the cone. The light emitting devices 44 are arranged on the interior walls of the cone 41 and are connected to a power supply unit 45 and a control unit 46. The light exiting the exit

aperture 43 propagates towards optional optical components [[57]] 47 and a microdisplay device 48 which may be a part of an imaging system.

Please insert the following at page 9, line 1 of the specification.

CLAIMS

Please insert the following at page 11, line 1of the specification.

ABSTRACT

Please insert the following at page 12, line 1 of the specification.

SEQUENCE LISTING

Not applicable